Chapter Topic: Environment, Climate, and Food Access

Community Vision Statement

(Overall Future Outcome Envisioned for this Chapter's Topic)

- Charlottesville will be an environmental leader, with healthy air, water, and ecosystems, as well as ample, high-quality, and accessible open space and natural areas, and a preserved and enhanced tree canopy. The Rivanna River and other waterbodies will be celebrated and protected, and environmentally-sound community access will be enhanced.
- Charlottesville's built environment will utilize green infrastructure and encourage healthy and low-carbon lifestyles by supporting walking, bicycling, and transit use, and access to outdoor public spaces and natural areas.
- Charlottesville's land use patterns will be well-integrated with its transportation network and will equitably balance land use, housing, transportation, environmental, and climate goals.
- The City and the Charlottesville community will work to create a more just and healthy food system through access to healthy foods for all residents, urban agriculture, transportation food pathways, and affordable food markets.
- The City and the Charlottesville community will continue to work toward meeting the goal of a 45% reduction in greenhouse gas emissions by 2030 (from 2011 levels) and carbon neutrality by 2050, accelerating greenhouse gas emission reductions where possible.
- The City, with the cooperation with the Charlottesville community, will both mitigate and prepare for the potential impacts of climate change by increasing reliable access to and use of clean energy sources, improving building energy performance, pursuing resilience and adaptation strategies, promoting sustainable waste management, and utilizing food & climate equity approaches.

Overview of Chapter Goals

(Specific outcomes related to achieving the Community Vision)

Goal 1. Climate Change, Emissions, and Energy: Reduce community greenhouse gas (GHG) emissions and the city's overall carbon footprint to meet goals established for 2030 (45% reduction in greenhouse gas emissions from 2011 levels) and 2050 (carbon neutrality).

Goal 2. Resilience and Adaptation: Prepare for the impacts of climate change.

Goal 3. Water Resources Protection: Protect, enhance, and restore the integrity of the city's water resources.

Goal 4. Resilient and Equitable Local Food System: Increase resilience and equitability of the local food system and urban agriculture, including access to healthy foods for all neighborhoods.

Goal 5. Urban Ecosystems: Pursue healthy, interconnected urban ecosystems that deliver valuable ecosystem services, and support diverse native plant communities

and wildlife habitats.

Goal 6. Tree Canopy: Promote practices that contribute to a robust urban forest.

Goal 7. Water Conservation: Promote and implement citywide water efficiency.

Goal 8. Materials Recovery and Waste Management: Promote and implement strategies for sustainable materials management to decrease environmental impacts.

Goals and Strategies

Goal 1. Climate Change, Emissions, and Energy: Reduce community greenhouse gas (GHG) emissions and the city's overall carbon footprint to meet goals established for 2030 (45% reduction in greenhouse gas emissions from 2011 levels) and 2050 (carbon neutrality).

Related Guiding Principle(s):

- *Environmental Stewardship & Sustainability; Local & Regional Collaboration*

Measures of Progress:

- *GHG emission reduction levels*
- *Energy demand for all buildings per square foot*
- *Number of renewable energy systems installed onsite; and % use of carbon-free electricity consumption*

Strategy 1.1 Once finalized, implement the Climate Action Plan (CAP), with a focus on equity and regular community and stakeholder involvement throughout the implementation process and at interim check points.

Sub-strategies:

- The City government should lead by example on implementing emissions reduction strategies.
- Support action within key community sectors (such as residential, commercial, and transportation) through policy, education, and program strategies.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: City Council, Public Works, Neighborhood Development Services (NDS), City Manager's Office, OED.
- Timeframe: Ongoing
- Source: CAP process

Strategy 1.2 Per the commitments made by joining the Compact of Mayors (now merged with Global Covenant of Mayors for Climate and Energy) in 2017, publicly report GHG inventory data for the city as well as climate hazards and vulnerabilities faced by the city.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 1.3 Improve energy performance of existing and new buildings community-wide through City policy standards and leverage of local partner resources.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works, NDS, City Manager's Office.
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 1.4 Promote effective and innovative energy and fuel management in both City- and privately-owned buildings and operations.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 1.5 Pursue use of and promote cleaner sources of energy (e.g., renewable energy strategies) community-wide.

Sub-strategies:

- Consider local policies and incentivizes to promote the expansion of solar power in residential homes.
- Investigate feasibility of siting solar power on appropriate municipal buildings.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter, *Cville Plans Together* process

Strategy 1.6 Encourage new development to design, construct, and operate with a reduced emissions footprint by encouraging high performance, green buildings, green sites, and green neighborhood standards and practices such as the U.S. Green Building Council's (USGBC) LEED certification program, Earthcraft, Energy Star, or other similar systems.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works, NDS.
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 1.7 As appropriate, create policy and financial incentives to encourage increased building and site performance that reduce GHG emissions and the city's overall carbon footprint.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works, NDS, Economic Development
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Goal 2. Resilience and Adaptation: Prepare for the impacts of climate change.

Related Guiding Principle(s):

- *Environmental Stewardship & Sustainability; Equity & Opportunity*

Measures of Progress:

- *Completion of climate hazard risk assessment*
- *Identification of climate resiliency and adaptation strategies, with information about community involvement demographics*

Strategy 2.1 Prepare a climate hazard risk assessment.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works
- Timeframe: 2-3 years
- Source: CAP Process

Strategy 2.2 Develop and implement strategies to address climate resiliency and adaptation needs, with a focus on equity and regular community and stakeholder involvement throughout the process.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works
- Timeframe: 2-3 years
- Source: CAP Process

Goal 3. Water Resources Protection: Protect, enhance, and restore the integrity of the city's water resources.

Related Guiding Principle(s):

- *Environmental Stewardship & Sustainability, Local & Regional Collaboration*

Measures of Progress:

- *Rivanna River and stream water quality indicators*
- *Pollutant reductions achieved through drainage programs*

Strategy 3.1 To demonstrate the value of the Rivanna River as a major natural asset with unique opportunities, adopt the forthcoming Rivanna River Corridor Plan as an amendment to this plan and implement in conjunction with the TJPDC and Albemarle County.

Sub-strategies:

- Work with regional partners to restore the Rivanna River to a healthy condition within our ecosystem through improvement of habitat, watershed health, and water quality.
- Ensure that planning for future land and recreational uses along the Rivanna River adequately protects water quality.
- Improve regional access to the river.
- Promote a harmonious balance of riverine ecosystem services, recreation, and development that supports health, safety, and prosperity.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: City Council, TJPDC, Albemarle County, NDS, Parks & Recreation, Public Works
- Timeframe: 1-2 years
- Source: 2018 draft Environment chapter, *Cville Plans Together* process

Strategy 3.2 Continue to implement the Water Resources Protection Program (WRPP) to meet a range of water resources goals and challenges, including regulatory compliance, stormwater conveyance infrastructure rehabilitation, drainage issues, and water quality stewardship.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works, Utilities
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 3.3 Implement the Water Resources Master Plan capital improvement programs (CIPs) to make drainage and water quality improvements and comply with federal and state- mandated pollutant reductions required as part of the Chesapeake Bay Total Maximum Daily Load (TMDL).

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works, City Council
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 3.4 Repair, enhance, and maintain City-owned stormwater management and conveyance infrastructure, utilizing green stormwater infrastructure where practicable. Focus improvements equitably in areas with the greatest amount of impervious surface.

Sub-strategies:

- Reduce loss of open waterways and associated natural habitats by discouraging additional underground piping of city streams and encouraging daylighting of piped streams.
- Explore the appropriateness of watershed scale compliance strategies to meet project and site- specific stormwater management regulatory requirements without exacerbating adverse impacts to waterways with existing water quality impairments.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works, Utilities
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 3.5 Protect water quality of the Rivanna River and local streams.

Sub-strategies:

- Continue public acquisition of natural areas along waterways to enable management strategies that protect water and habitat quality.
- Enforce the existing 100’ stream buffer and consider locations for expansion of this protection.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Parks and Recreation, City Council
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 3.6 Encourage property owners to implement water resources stewardship practices through educational materials and incentives, with a focus on retrofitting sites that lack adequate stormwater treatment.

Sub-strategy:

- Provide technical assistance and educational outreach regarding water resources stewardship for private property owners.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works, property owners
- Timeframe: To be determined
- Source: 2018 draft Environment chapter

Strategy 3.7 Collaborate and cooperate with Rivanna watershed stakeholders to focus on watershed and stormwater management, including education and outreach efforts.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works, Parks and Recreation, NDS, Albemarle County, UVA, property owners, businesses, developers, and community groups
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Goal 4. Resilient and Equitable Local Food System: Increase

resilience and equitability of the local food system and urban agriculture, including access to healthy foods for all neighborhoods.

Related Guiding Principle(s):

- *Equity & Opportunity, Environmental Stewardship & Sustainability, Local & Regional Collaboration*

Measures of Progress:

- *Acreage of urban farms and gardens*
- *Pounds of food produced by local urban agriculture*
- *% community within walking distance (1/2 mile) to a grocery store or food market by Neighborhood Planning Area*

Strategy 4.1 Evaluate recommended standards for open space and how those could be implemented to support urban agriculture production and food availability, especially for low-income populations and residents previously displaced through redevelopment.

Sub-strategies:

- Promote and protect green and urban agriculture spaces distributed throughout the city, especially in or near public and subsidized housing sites, for the sustainable production of locally grown foods or community gardens; leverage resources with local partners. Look for ways to allow and encourage urban agriculture in yards and on rooftops, through zoning and other processes.
- Define a process to make both community and shared garden spaces more equitable and accessible to residents without private land.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Parks and Recreation, NDS, local partners
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter, *Cville Plans Together* process

Strategy 4.2 Investigate ways to incorporate food equity practices such as urban agriculture, edible landscaping, and water conservation into the Parks & Recreation Strategic Master Plan.

Sub-strategies:

- As part of parks planning and other efforts, strategically invest in preserving green space for community food security purposes.
- Utilize a community-based approach that leverages public and private partnerships as well as resident leadership in conducting an urban agriculture land availability assessment and prioritization.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Parks and Recreation, Community partners, Public Works (Environmental Sustainability Division)
- Timeframe: 2-3 years
- Source: *Cville Plans Together* process

Strategy 4.3 Promote sustainable resource strategies for urban agriculture (e.g., soil health, nutrient inputs, water collection, efficient irrigation) including during development and redevelopment projects, in low-income census tracts, and throughout the city.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works, Parks and Recreation
- Timeframe: To be determined
- Source: 2018 draft Environment chapter, *Cville Plans Together* process

Strategy 4.4 Commit to eliminating food deserts through strategic support and collaboration of organizations, community members, health institutions, and City departments focused on cultivating healthy food access through programs and supporting the creation of affordable markets in or within walking distance to low-income neighborhoods.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: CCS, City Council, Parks and Recreation, Community partners
- Timeframe: To be determined
- Source: *Cville Plans Together* process

Goal 5. Urban Ecosystems: Pursue healthy, interconnected urban ecosystems that deliver valuable ecosystem services, and support diverse native plant communities and wildlife habitats.

Related Guiding Principle(s):

- *Environmental Stewardship & Sustainability*

Measures of Progress:

- *% pervious surfaces by Neighborhood Planning Area*
- *Reduction in impact of invasive species*

Strategy 5.1 Use green infrastructure, including strategies outlined in GreenPrint 1.0, to improve stormwater management, flood mitigation, air and water quality, habitat, species migration, connectivity, and livability. Ensure that all neighborhoods are considered for these improvements, particularly where there is currently a lack of green infrastructure.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works, Parks and Recreation
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 5.2 Improve stream and vegetated buffer conditions to increase wildlife and aquatic habitat, groundwater recharge and stream base flow, decrease stream temperature, provide a food source for aquatic organisms, improve water quality by decreasing sedimentation, and improve environmental aesthetics.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works, Parks and Recreation
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 5.3 Promote and participate in programs to establish conservation or open space easements of forested stream-side lands to ensure permanent protection; in particular, this should include those

programs that prioritize, protect, or improve water quality flooding impacts, allow for species migration due to climate change, and provide recreational amenities accessible by foot, bicycle, and/or transit.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works, Parks and Recreation
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 5.4 Continue public stewardship of lands and associated habitats through showcase conservation and improvement projects and education.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works, Parks and Recreation
- Timeframe: Ongoing

- Source: 2018 draft Environment chapter

Strategy 5.5 Plant and promote the use of regionally-adapted, native, and drought tolerant plants, including these as part of turf-to-forest conversions and pollinator gardens.

Implementation Notes and Source of Strategy:
- Potential Implementation Lead & Partners: Parks and Recreation, Public Works
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 5.6 Support the conservation of local and regional biodiversity, and promote the protection and enhancement of natural plant communities and wildlife habitat.

Implementation Notes and Source of Strategy:
- Potential Implementation Lead & Partners: Parks and Recreation, Public Works
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 5.7 Manage invasive plant and animal species in support of healthy native plant and animal communities.

Implementation Notes and Source of Strategy:
- Potential Implementation Lead & Partners: Parks and Recreation, Public Works
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Goal 6. Tree Canopy: Promote practices that contribute to a robust urban forest.

Related Guiding Principle(s):
- *Environmental Stewardship & Sustainability, Equity & Opportunity*

Measures of Progress:
- *% tree canopy coverage by Neighborhood Planning Area*

Strategy 6.1 Monitor, protect, and expand the urban tree canopy cover both at citywide and neighborhood levels.

Sub-strategies:
- Continue to implement the Urban Forest Management Plan to protect quality of air, water, and lands; manage stormwater; provide shading; absorb CO2.
- Address invasive species, diversity, and distribution.
- As the Urban Forest Management Plan is updated, ensure that it describes ways to manage and expand the urban forest as an environmental justice solution to provide equity among all demographics and communities across the city.

Implementation Notes and Source of Strategy:
- Potential Implementation Lead & Partners: Parks and Recreation, Tree Commission
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 6.2 Include trees, as practicable, in all priority streetscape plans (e.g., framework streets, safe routes to school, Strategic Investment Areas). Work). Work to preserve existing healthy trees

whenever streets are modified.

Implementation Notes and Source of Strategy:
- Potential Implementation Lead & Partners: Public Works
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 6.3 Develop methods to support retaining and increasing healthy tree canopy on private lands. Consider the effectiveness of incentives as well as new requirements.

Sub-strategy:
- Study site plan requirements to update them with increased tree protection elements.

Implementation Notes and Source of Strategy:
- Potential Implementation Lead & Partners: Parks and Recreation, Tree Commission, Community Tree Advocacy Groups, NDS, Public Works, City Attorney
- Timeframe: 2-3 Years
- Source: 2018 draft Environment chapter

Strategy 6.4 Use the maps of Green Infrastructure Possible Planting Areas from GreenPrint 1.0 to inform tree planting prioritization, in addition to considering prioritization of underserved communities and neighborhoods experiencing related impacts such as Urban Heat Islands.

Implementation Notes and Source of Strategy:
- Potential Implementation Lead & Partners: Parks and Recreation, Public Works, Park & Recreation
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter, *Cville Plans Together* process

Goal 7. Water Conservation: Promote and implement citywide water efficiency.

Related Guiding Principle(s):
- *Environmental Stewardship & Sustainability; Local & Regional Collaboration*

Measures of Progress:
- *Water use efficiency metrics*

Strategy 7.1 Continue evaluating water use in City-owned buildings and other operations to identify conservation opportunities.

Implementation Notes and Source of Strategy:
- Potential Implementation Lead & Partners: Public Works
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 7.2 Maintain an extensive community focused outreach campaign through education and incentive programs to maintain or further decrease average water consumption.

Implementation Notes and Source of Strategy:
- Potential Implementation Lead & Partners: Public Works, Utilities
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 7.3 Explore opportunities with community partners to improve

water efficiency.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works, Utilities
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Goal 8. Materials Recovery and Waste Management: Promote and implement strategies for sustainable materials management to decrease environmental impacts.

Related Guiding Principle(s):

- *Environmental Stewardship & Sustainability; Local & Regional Collaboration*

Measures of Progress:

- *% of waste diverted to recycling or compost*
- *# households participating in recycling programs*

Strategy 8.1 Assess the success of current public and private recycling efforts and explore opportunities to expand public and private recycling (including appliance collection), composting, source reduction, other waste stream diversion, and other waste management innovations.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter, *Cville Plans Together* process

Strategy 8.2 Maintain lines of communication with neighborhood and business associations, major employers, and representatives of high density housing districts so that solid waste management services are adaptably delivered to promote economic development, enhanced walkability, public health and safety, landfill diversion, and compliance with all federal and local requirements.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works
- Timeframe: Ongoing
- Source: 2018 draft Environment chapter

Strategy 8.3 Through education initiatives and incentive programs, encourage the increased use of composting to reduce landfill waste, reduce greenhouse gas emissions, and support urban landscaping and agriculture.

Implementation Notes and Source of Strategy:

- Potential Implementation Lead & Partners: Public Works
- Timeframe: To be determined
- Source: Staff